

PATENT
Docket No. 00-8015
Application Serial No. 09/656,868

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method for predicting digital subscriber line (DSL) performance on an existing telephone loop, comprising:
 - obtaining a topological description of the existing telephone loop;
 - identifying, as an equivalent loop, a test loop different from the existing telephone loop, the test loop being limited to a straight physical loop of a particular length and a particular gauge, and being equivalent to the existing telephone loop based on the topological description of the existing telephone loop;
 - determining DSL performance for the equivalent loop by considering physical characteristics of the equivalent loop; [[and]]
 - predicting DSL performance for the existing telephone loop based on the determined DSL performance for the equivalent loop; and
 - determining a DSL capacity of the existing telephone loop from the topological description of the existing telephone loop;
 - wherein the identifying includes using the DSL capacity to identify the equivalent loop.
2. (previously presented) The method of claim 1, wherein the obtaining includes:
 - receiving at least one of a frequency, length, gauge, temperature, or insulation type associated with the existing telephone loop.

PATENT
Docket No. 00-8015
Application Serial No. 09/656,868

3. (original) The method of claim 1, further comprising:
determining an insertion loss for the existing telephone loop based on the topological description of the existing telephone loop.
4. (original) The method of claim 3, further comprising:
determining a DSL capacity of the existing telephone loop using the insertion loss for the existing telephone loop.
5. (original) The method of claim 4, wherein the determining a DSL capacity includes:
creating a loss curve using the insertion loss, and
integrating the loss curve to determine the DSL capacity of the existing telephone loop.
6. (original) The method of claim 4, wherein the determining a DSL capacity includes:
creating a loss curve based on the insertion loss over a plurality of frequencies,
and
determining an area below the loss curve over the plurality of frequencies, the area corresponding to the DSL capacity of the existing telephone loop.

PATENT
Docket No. 00-8015
Application Serial No. 09/656,868

7. (original) The method of claim 4, wherein the existing telephone loop includes an upstream path and a downstream path; and

wherein the determining a DSL capacity includes:

separately determining the DSL capacity for each of the upstream and downstream paths.

8. (canceled)

9. (currently amended) The method of claim [[8]] 1, wherein the existing telephone loop includes an upstream path and a downstream path; and

wherein the determining a DSL capacity includes:

separately determining the DSL capacity for each of the upstream and downstream paths.

10. (original) The method of claim 9, wherein the identifying includes:

determining equivalent loops corresponding to each of the upstream and downstream paths.

11. (canceled)

12. (currently amended) The method of claim [[11]] 1, wherein the using includes:

locating the DSL capacity in a table, and

PATENT
Docket No. 00-8015
Application Serial No. 09/656,868

finding the equivalent loop that corresponds to the DSL capacity in the table.

13. (currently amended) The method of claim [[11]] 1, wherein the using includes:
determining the particular length of the straight loop from information regarding
at least one of bridged-taps, gauge, temperature, or insulation type associated with the
existing telephone loop.
14. (original) The method of claim 1, wherein the determining DSL performance for
the equivalent loop includes:
selecting DSL performance data from a plurality of previously-obtained DSL
performance data.
15. (original) The method of claim 1, wherein the determining DSL performance for
the equivalent loop includes:
selecting DSL performance data from a plurality of DSL performance data for
loops of different lengths under different crosstalk conditions.
16. (original) The method of claim 1, wherein the predicting includes:
determining spectral interference conditions associated with the existing telephone
loop, and
predicting the DSL performance of the existing telephone loop based on the DSL
performance for the equivalent loop and the determined spectral interference conditions.

PATENT
Docket No. 00-8015
Application Serial No. 09/656,868

17. (canceled)

18. (currently amended) A system for estimating digital subscriber line (DSL) performance on customer telephone loops, comprising:

- a memory configured to store instructions; and
- a processor configured to execute the instructions to:
 - receive information regarding the customer telephone loops,
 - identify, as equivalent loops, test loops different from the customer telephone loops, the different loops being limited to straight physical loops of one or more particular lengths and a corresponding one or more particular gauges and being equivalent to the customer telephone loops based on the received information,
 - determine DSL performance for the equivalent loops by considering physical characteristics of the equivalent loops, [[and]]
 - estimate DSL performance for the customer telephone loops from the determined DSL performance for the equivalent loops, and
 - determine a DSL capacity of each of the customer telephone loops from the received information for the customer telephone loops and use the DSL capacity corresponding to each of the customer telephone loops to identify the equivalent loops.

19. (previously presented) The system of claim 18, wherein when receiving information regarding the customer telephone loops, the processor is configured to receive at

PATENT
Docket No. 00-8015
Application Serial No. 09/656,868

least one of a frequency, length, gauge, temperature, or insulation type associated with each of the customer telephone loops.

20. (original) The system of claim 18, wherein the processor is further configured to determine an insertion loss for each of the customer telephone loops based on the received information for the customer telephone loops.

21. (original) The system of claim 20, wherein the processor is further configured to determine a DSL capacity of each of the customer telephone loops using the insertion loss for the existing telephone loops.

22. (original) The system of claim 21, wherein when determining a DSL capacity of each of the customer telephone loops, the processor is configured to create a loss curve using the insertion loss and integrate the loss curve to determine the DSL capacity of the customer telephone loop.

23. (original) The system of claim 21, wherein when determining a DSL capacity of each of the customer telephone loops, the processor is configured to create a loss curve based on the insertion loss over a plurality of frequencies and determine an area below the loss curve over the plurality of frequencies, the area corresponding to the DSL capacity of the customer telephone loop.

PATENT
Docket No. 00-8015
Application Serial No. 09/656,868

24. (original) The system of claim 21, wherein each of the customer telephone loops includes an upstream path and a downstream path; and

wherein when determining a DSL capacity of each of the customer telephone loops, the processor is configured to separately determine the DSL capacity for each of the upstream and downstream paths.

25. (canceled)

26. (currently amended) The system of claim ~~[[25]]~~ 18, wherein each of the customer telephone loops includes an upstream path and a downstream path; and

wherein when determining a DSL capacity of each of the customer telephone loops, the processor is configured to separately determine the DSL capacity for each of the upstream and downstream paths.

27. (original) The system of claim 26, wherein the processor is configured to determine equivalent loops corresponding to each of the upstream and downstream paths.

28. (canceled)

29. (currently amended) The system of claim ~~[[28]]~~ 18, wherein the processor is configured to locate the DSL capacity corresponding to each of the customer loops in a table and find the equivalent loops that correspond to the DSL capacities in the table.

PATENT
Docket No. 00-8015
Application Serial No. 09/656,868

30. (currently amended) The system of claim ~~[[28]]~~ 18, wherein the processor is configured to determine the one or more particular lengths of the straight loops from information regarding at least one of bridged-taps, gauge, temperature, or insulation type associated with each of the customer telephone loops.

31. (original) The system of claim 18, wherein when determining DSL performance for each of the equivalent loops, the processor is configured to select DSL performance data from a plurality of previously-obtained DSL performance data.

32. (original) The system of claim 18, wherein when determining DSL performance for each of the equivalent loops, the processor is configured to select DSL performance data from a plurality of DSL performance data for loops of different lengths under different crosstalk conditions.

33. (original) The system of claim 18, wherein the processor is configured to determine spectral interference conditions associated with each of the customer telephone loops and predict the DSL performance of the customer telephone loops based on the DSL performance for the equivalent loops and the determined spectral interference conditions.

34-35. (canceled)

PATENT
Docket No. 00-8015
Application Serial No. 09/656,868

36. (previously presented) A method for predicting asymmetric digital subscriber line (ADSL) performance on an existing telephone loop, comprising:

determining characteristics and operating conditions of the existing telephone loop;

calculating ADSL capacity of the existing telephone loop based on the determined characteristics;

identifying a different, test loop limited to a physical loop of a particular length and a particular gauge that is equivalent to the existing telephone loop based on the ADSL capacity and the determined operating conditions of the existing telephone loop;

determining ADSL performance on the equivalent different, test loop by considering physical characteristics of the different, test loop; and

predicting ADSL performance on the existing telephone loop from the determined ADSL performance on the equivalent different, test loop.